

CERES data products for ARISE

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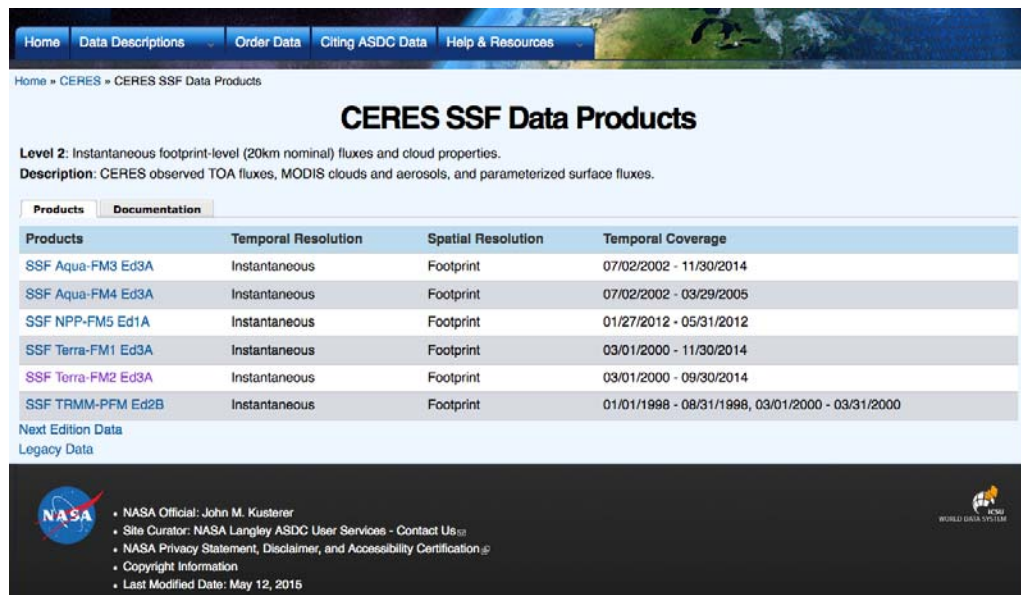


List of CERES data products

- SSF (level 2)
 - Terra (FM1 and FM2), Aqua (FM3), NPP (FM5)
 - TOA irradiance, MODIS-derived cloud properties
 - MODIS derived aerosol properties
 - Instantaneous surface irradiance from parameterized codes
- C3M (level 2)
 - CALIPSO, CloudSat, MODIS (Aqua), and CERES (FM3)
 - Irradiance profile computed with CALIPSO, CloudSat, MODIS derived cloud properties
 - CALIPSO and MODIS derived aerosol properties
 - T and Q from GEOS-5.2
- SYN (level 3)
 - Gridded ($1^\circ \times 1^\circ$) hourly

SSF

- <http://ceres.larc.nasa.gov/products-info.php?product=SSF-Level2>
- https://eosweb.larc.nasa.gov/project/ceres/ssf_table



The screenshot shows the 'CERES SSF Data Products' page. It features a navigation bar with links: Home, Data Descriptions, Order Data, Citing ASDC Data, and Help & Resources. Below the navigation bar, the page title 'CERES SSF Data Products' is displayed. A description of Level 2 data is provided: 'Instantaneous footprint-level (20km nominal) fluxes and cloud properties. Description: CERES observed TOA fluxes, MODIS clouds and aerosols, and parameterized surface fluxes.' A table with four columns (Products, Temporal Resolution, Spatial Resolution, Temporal Coverage) lists various data products. The table includes products from Aqua-FM3, Aqua-FM4, NPP-FM5, Terra-FM1, Terra-FM2, and TRMM-PFM. Below the table, links for 'Next Edition Data' and 'Legacy Data' are provided. The footer contains the NASA logo, contact information for John M. Kusterer, and a 'Last Modified Date' of May 12, 2015.

Products	Temporal Resolution	Spatial Resolution	Temporal Coverage
SSF Aqua-FM3 Ed3A	Instantaneous	Footprint	07/02/2002 - 11/30/2014
SSF Aqua-FM4 Ed3A	Instantaneous	Footprint	07/02/2002 - 03/29/2005
SSF NPP-FM5 Ed1A	Instantaneous	Footprint	01/27/2012 - 05/31/2012
SSF Terra-FM1 Ed3A	Instantaneous	Footprint	03/01/2000 - 11/30/2014
SSF Terra-FM2 Ed3A	Instantaneous	Footprint	03/01/2000 - 09/30/2014
SSF TRMM-PFM Ed2B	Instantaneous	Footprint	01/01/1998 - 08/31/1998, 03/01/2000 - 03/31/2000

C3M

- https://eosweb.larc.nasa.gov/project/ceres/cccm_table



The screenshot shows the 'CERES CCCM Data Products' page. At the top is a navigation bar with links: Home, Data Descriptions, Order Data, Citing ASDC Data, and Help & Resources. Below the navigation bar is a breadcrumb trail: Home » CERES » CERES CCCM Data Products. The main heading is 'CERES CCCM Data Products'. Below this, there is a 'Level 2' description: 'Instantaneous footprint-level (20km nominal) fluxes and cloud properties.' followed by a 'Description' paragraph. The description states: 'The CERES-MODIS-CALIPSO-CloudSat (CCCM) data set integrates measurements from the Clouds and the Earth's Radiant Energy System (CERES), the Moderate Resolution Imaging Spectroradiometer (MODIS), the Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations (CALIPSO) Cloud-Aerosol Lidar with Orthogonal Polarization (CALIOP), and CloudSat Cloud Profiling Radar (CPR) data. CALIPSO/CloudSat cloud and aerosols collocated with nadir-view CERES fluxes and clouds.' Below the description are two tabs: 'Products' (selected) and 'Documentation'. Under the 'Products' tab is a table with four columns: 'Products', 'Temporal Resolution', 'Spatial Resolution', and 'Temporal Coverage'. The table contains one row with the product name 'CER-NEWS_CCCM_Aqua-FM3-MODIS-CAL-CS ReIB1', 'Instantaneous' temporal resolution, 'Footprint' spatial resolution, and '07/2006 - 04/2011' temporal coverage. Below the table is a link for 'Legacy Data'. At the bottom of the page is a footer section with the NASA logo and a list of links: 'NASA Official: John M. Kusterer', 'Site Curator: NASA Langley ASDC User Services - Contact Us', 'NASA Privacy Statement, Disclaimer, and Accessibility Certification', 'Copyright Information', and 'Last Modified Date: May 12, 2015'. On the right side of the footer is the 'ICSU WORLD DATA SYSTEM' logo.

Home » CERES » CERES CCCM Data Products

CERES CCCM Data Products

Level 2: Instantaneous footprint-level (20km nominal) fluxes and cloud properties.

Description: The CERES-MODIS-CALIPSO-CloudSat (CCCM) data set integrates measurements from the Clouds and the Earth's Radiant Energy System (CERES), the Moderate Resolution Imaging Spectroradiometer (MODIS), the Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations (CALIPSO) Cloud-Aerosol Lidar with Orthogonal Polarization (CALIOP), and CloudSat Cloud Profiling Radar (CPR) data. CALIPSO/CloudSat cloud and aerosols collocated with nadir-view CERES fluxes and clouds.

Products | Documentation

Products	Temporal Resolution	Spatial Resolution	Temporal Coverage
CER-NEWS_CCCM_Aqua-FM3-MODIS-CAL-CS ReIB1	Instantaneous	Footprint	07/2006 - 04/2011

[Legacy Data](#)



- NASA Official: John M. Kusterer
- Site Curator: NASA Langley ASDC User Services - [Contact Us](#)
- [NASA Privacy Statement, Disclaimer, and Accessibility Certification](#)
- [Copyright Information](#)
- Last Modified Date: May 12, 2015

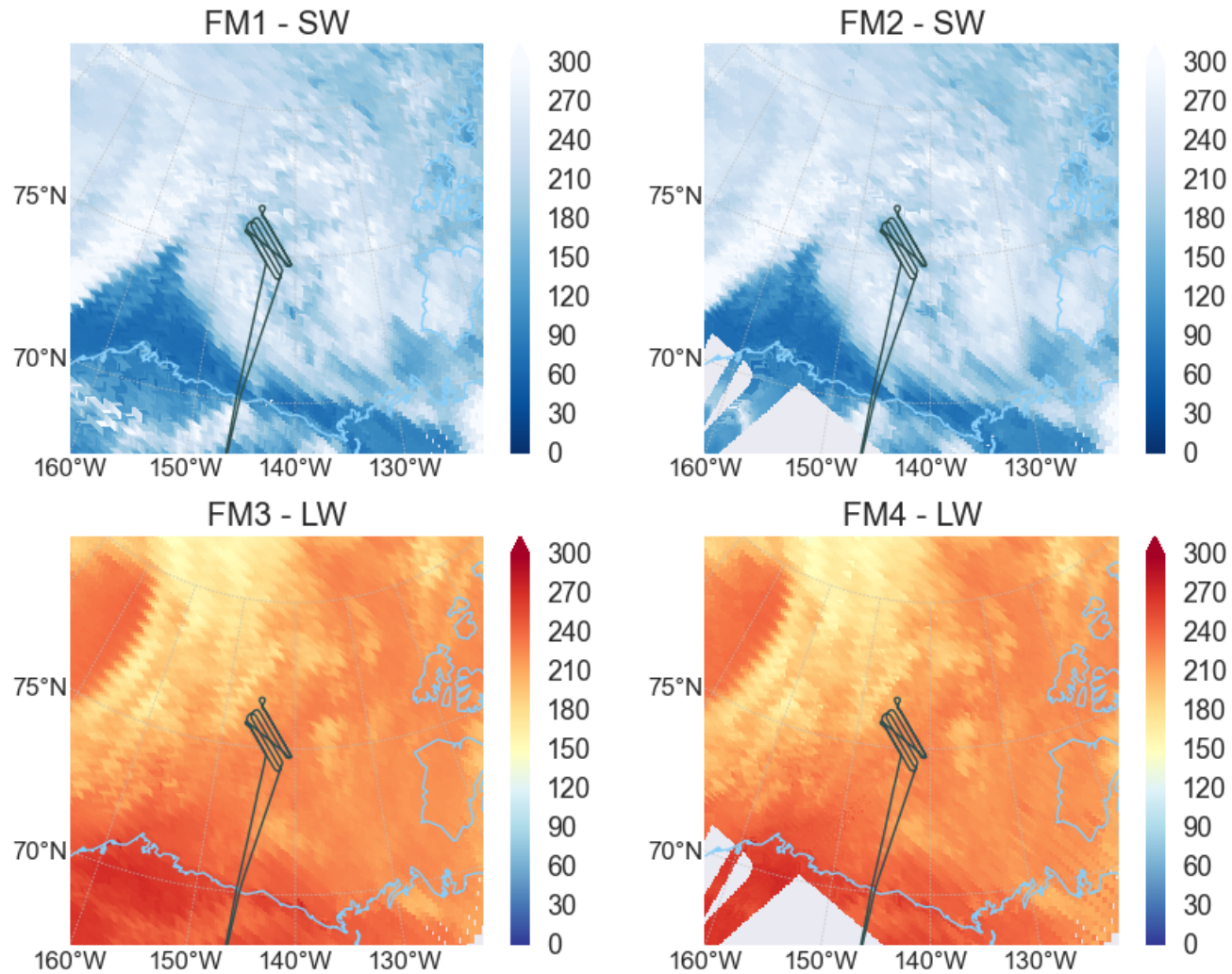
 ICSU
WORLD DATA SYSTEM

CERES FM-2 targets

Starting date and time	Ending date and time	location
Aug 27 00 UTC	Sep 4 24 UTC	72° 35'N 38° 28' W (Summit)
Sep 5 00 UTC	Sep 9 24 UTC	74° 50'N, 142° 30'W
Sep 10 00 UTC	Sep 14 24 UTC	73° 50'N, 134° 0'W
Sep 15 00 UTC	Sep 20 24 UTC	74° 48'N, 154° 50'W
Sep 21 00 UTC	Sep 25 24 UTC	74° 50'N, 142° 30'W
Sep 26 00 UTC	Sep 30 24 UTC	73° 50'N, 134° 0'W

CERES TOA irradiance from SSF Sep. 7

Terra - 2014090722

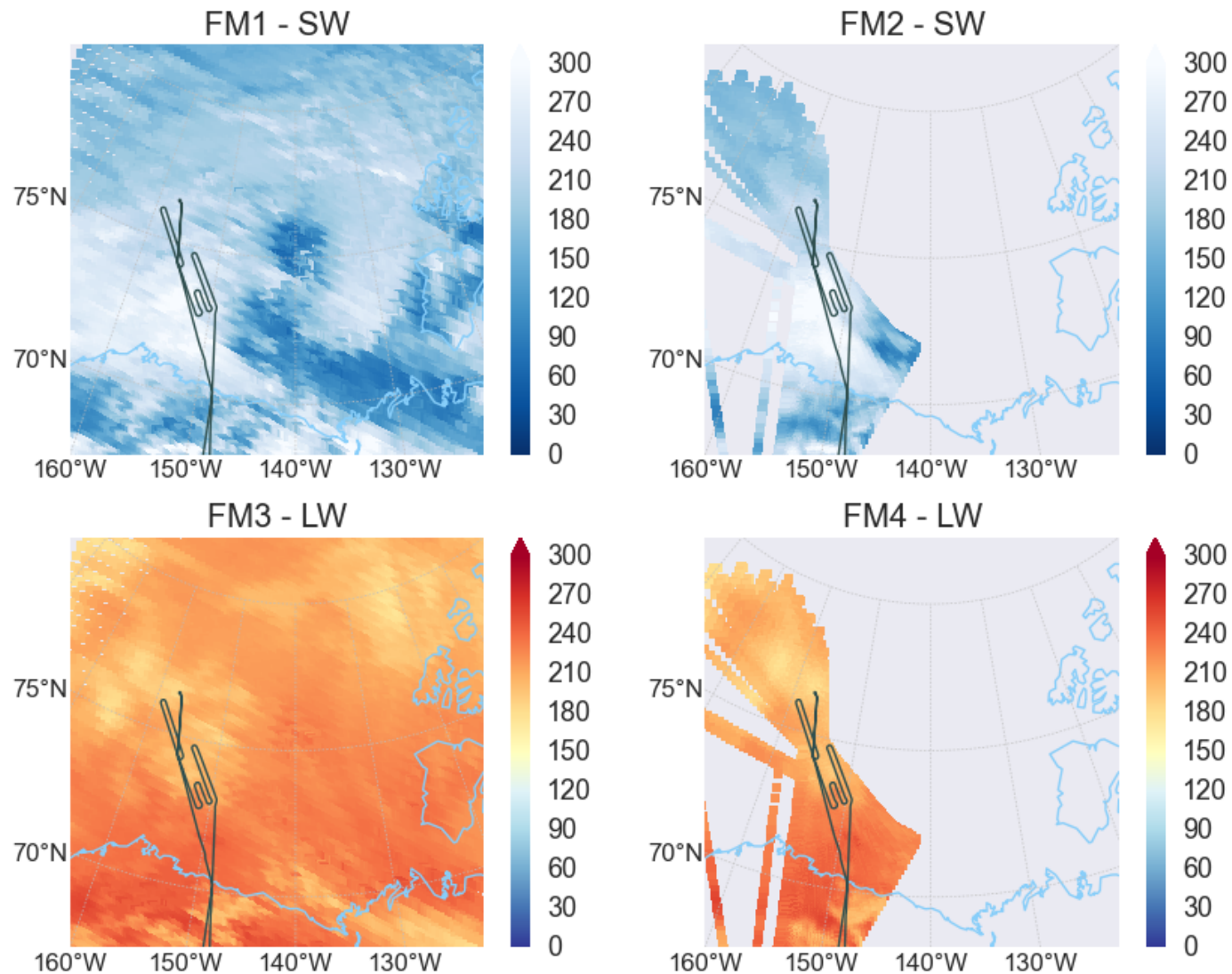


CALIPSO CloudSat operation

	CALIPSO	CloudSat
Sep 7	Y	Y
Sep 9	N	Y
Sep 11	N	Y
Sep 13	N	Y
Sep 15	Y	Y
Sep 17	Y	Y
Sep 24	Y	Y

CERES TOA irradiance from SSF, Sep. 15

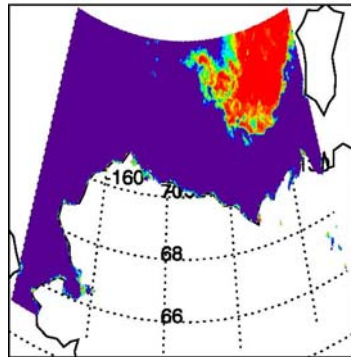
Terra - 2014091521



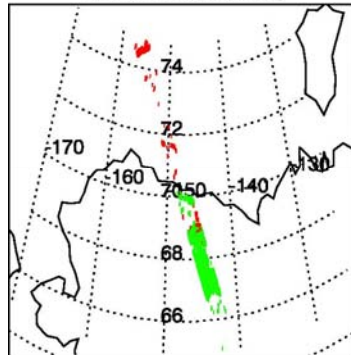
15 September 2014, 22:00UTC

(Sea/Ice)

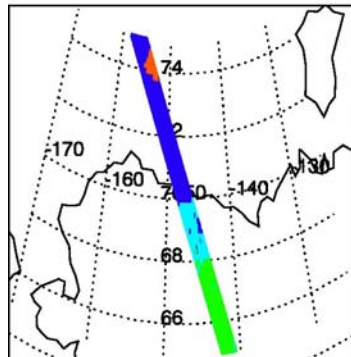
AMSR-2 Snow Ice Concentration



CCCM Snow/Ice Flag

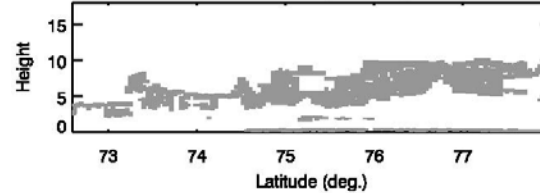


CCCM Modified IGBP

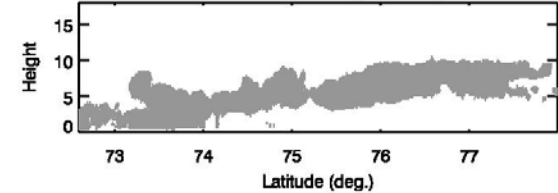


(Construction of 3D Clouds)

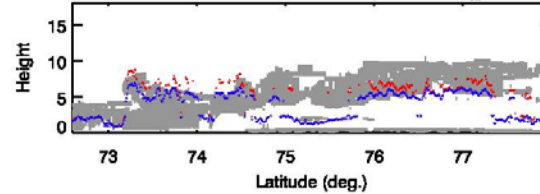
CALIPSO Cloud Mask (Feature Type = 2)



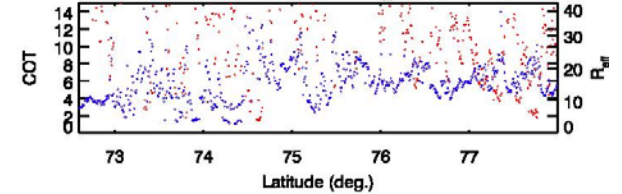
CloudSat Cloud Mask (Mask ≥ 30)



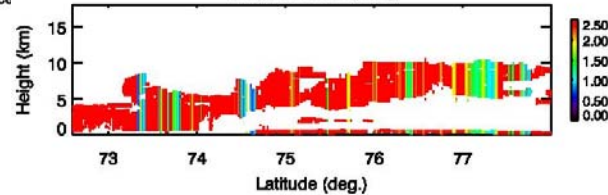
Merged Cloud Mask (Grey), MODIS Z_r (Red) and Z_{eff} (Blue)



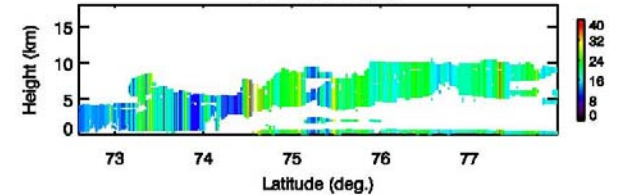
MODIS COT (Red) and R_{eff} (Blue)



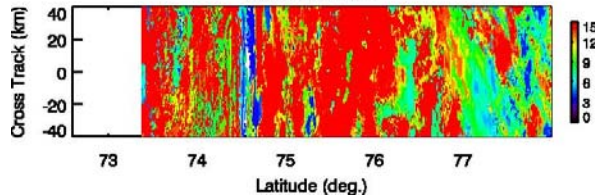
Extinction Coeff. (km^{-1})



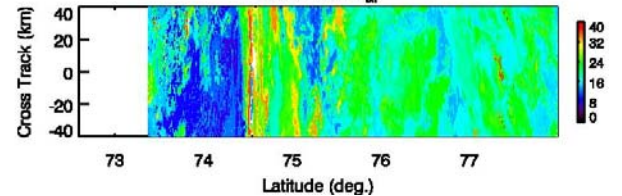
Effective Radius (μm)



Constructed COT



Constructed R_{eff}



SYN1deg

- <http://ceres-tool.larc.nasa.gov/ord-tool/jsp/SYN1degSelection.jsp>

The screenshot shows the 'CERES SYN1deg Ed3A Subsetting and Browsing' web interface. The header includes the CERES logo and navigation links: 'Data Products Page', 'Change Password', and 'Help'. Below the header, there are tabs for 'Selection Page' and 'My Orders'. The main content area is titled 'Parameters' and is divided into three sections: 'Observed TOA Fluxes', 'Computed TOA, Surface, and In-Atmosphere Fluxes', and 'Cloud Parameters, MODIS Aerosols, and Auxiliary Data'. Each section contains a list of parameters with checkboxes and links to select individual parameters. In the 'Computed TOA, Surface, and In-Atmosphere Fluxes' section, 'Computed Surface Fluxes' is selected. The 'Temporal Resolution' section at the bottom has radio buttons for 'Monthly', 'Monthly 3-Hourly', 'Daily: every 1 days', and 'Daily 3-Hourly', with 'Daily 3-Hourly' being the selected option.

CERES SYN1deg Ed3A Subsetting and Browsing

[Data Products Page](#) | [Change Password](#) | [Help](#)

Selection Page | My Orders

Parameters

Observed TOA Fluxes

☐ Observed TOA Fluxes [Click to select individual parameters](#)

Computed TOA, Surface, and In-Atmosphere Fluxes

☐ Computed TOA Fluxes [Click to select individual parameters](#)

☒ Computed Surface Fluxes [Selected Fields: Click to View](#)

☐ Computed Surface SW Direct and Diffuse Fluxes [Click to select individual parameters](#)

☐ Computed UV Fluxes and Indices [Click to select individual parameters](#)

☐ Computed PAR Fluxes [Click to select individual parameters](#)

☐ Computed All-Sky In-Atmosphere Fluxes [Click to select individual parameters](#)

☐ Computed Clear-Sky In-Atmosphere Fluxes [Click to select individual parameters](#)

Cloud Parameters, MODIS Aerosols, and Auxiliary Data

☐ Cloud Parameters [Click to select individual parameters](#)

☐ MODIS Aerosols [Click to select individual parameters](#)

☐ Auxiliary Data [Click to select individual parameters](#)

Temporal Resolution

☐ Monthly

☐ Monthly 3-Hourly: GMT

☐ Daily: every days

☒ Daily 3-Hourly

3 types experiments for CERES validations

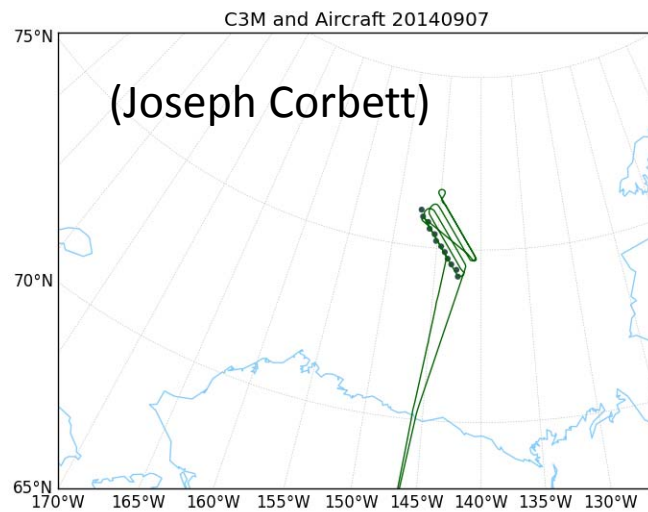
- Grid box experiment
 - C-130 flies over a ~100 km by 100 km grid box at ~10 km (TOA) or near the surface
- Ground track experiment
 - C-130 follows the ground track of CALIPSO/CloudSat (within +/- 30 min). C-130 can be above, below and within clouds
- Vertical profile and sea ice surface albedo experiment

Evaluation of SYN1deg-hour

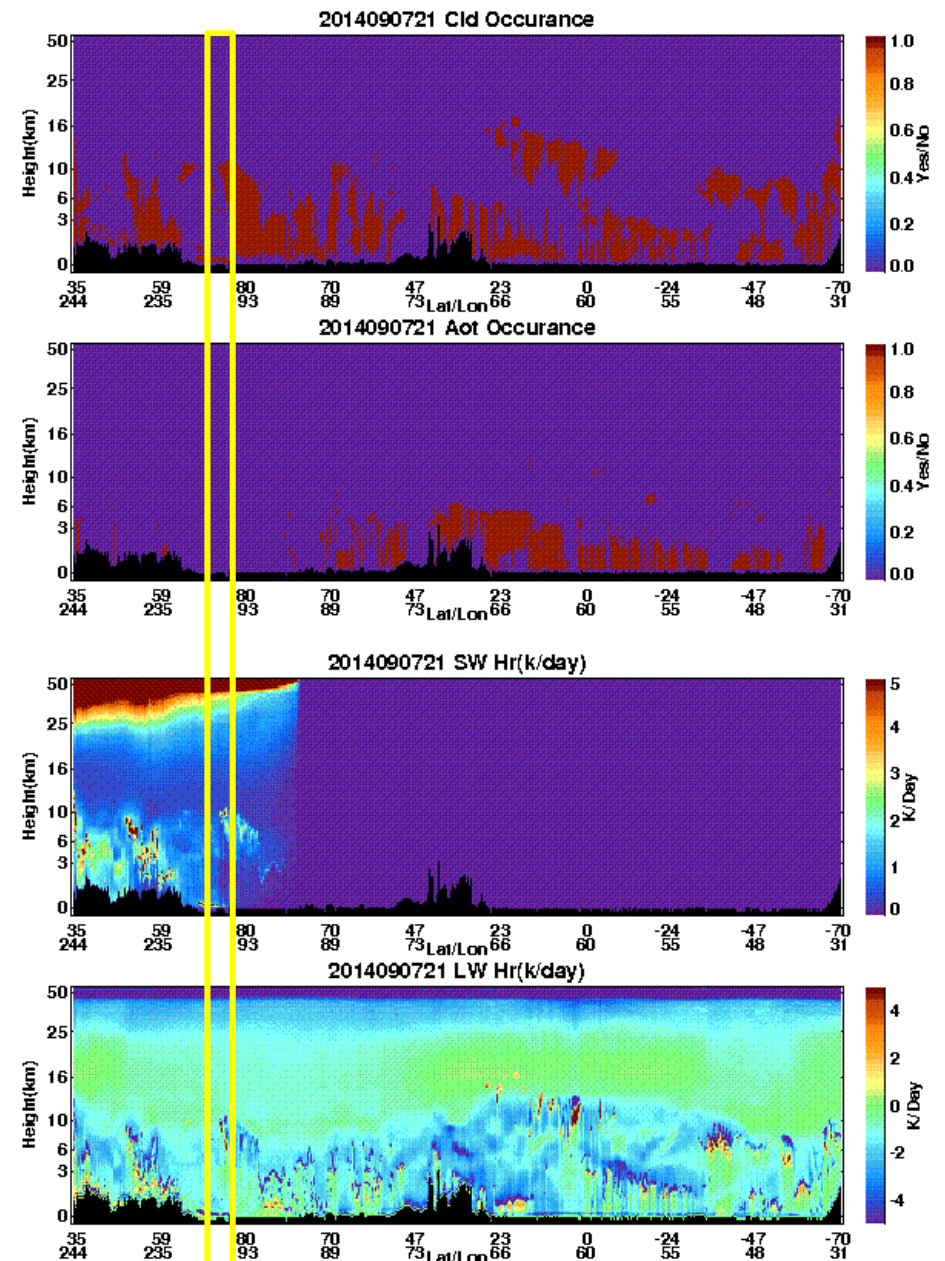
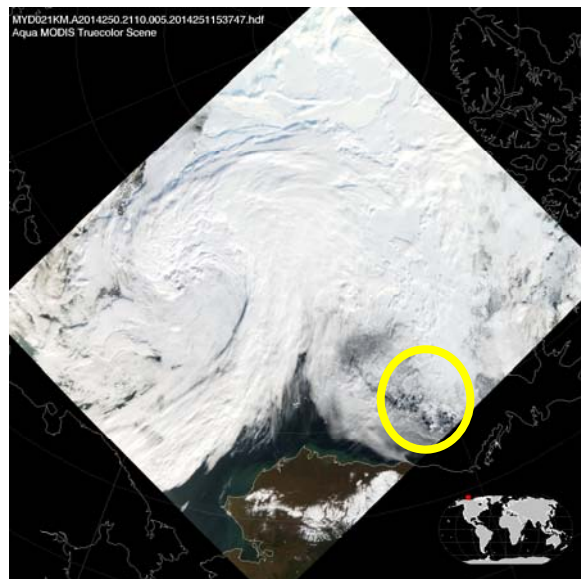
- Scientific objectives
 - Estimate the uncertainty in gridded hourly mean irradiances in the CERES SYN and EBAF data products.
- Sep. 7 and 15 cases
- Construction of 3D cloud fields
- Comparison of computed irradiance at the aircraft altitude with aircraft observations.
- Comparison of gridded mean irradiance
 - Computed irradiance with 3D cloud fields versus aircraft observations
 - Gridded hourly mean irradiance from SYN and aircraft observations.
 - Computed irradiance with 3D cloud fields versus gridded hourly mean irradiance from SYN

7 September 2014, 21:11UTC

(QC Plot)



(MOD L1B Image)

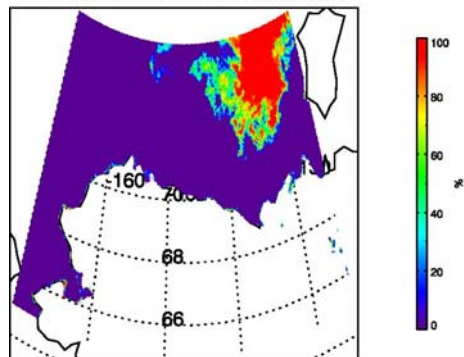


7 September 2014, 21:11UTC

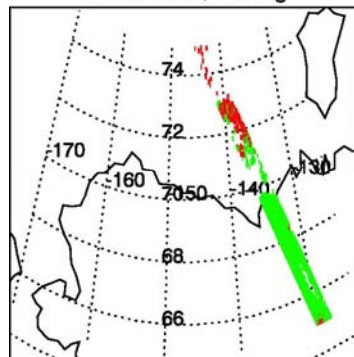
(Sea/Ice)

(Construction of 3D Clouds)

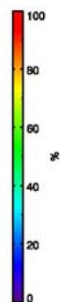
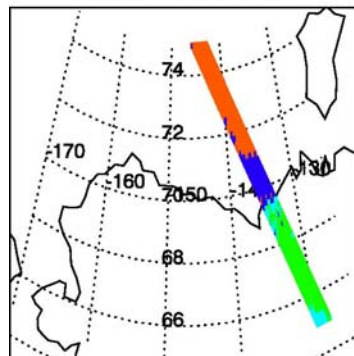
AMSR-2 Snow Ice Concentration



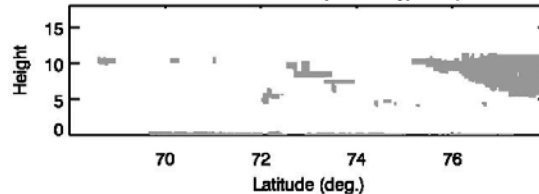
CCCM Snow/Ice Flag



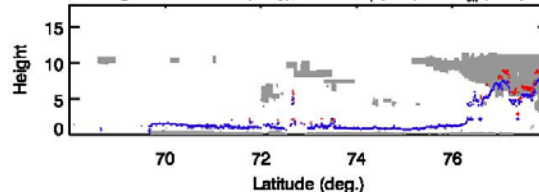
CCCM Modified IGBP



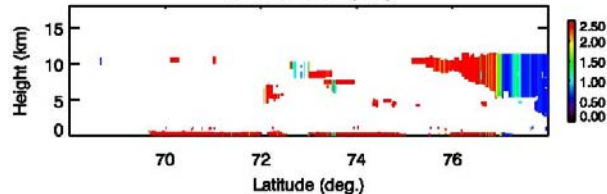
CALIPSO Cloud Mask (Feature Type = 2)



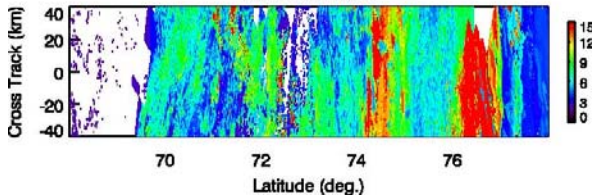
Merged Cloud Mask (Grey), MODIS Z_T (Red) and Z_{eff} (Blue)



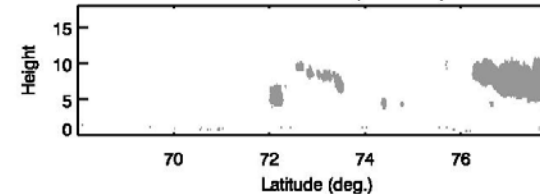
Extinction Coeff. (km^{-1})



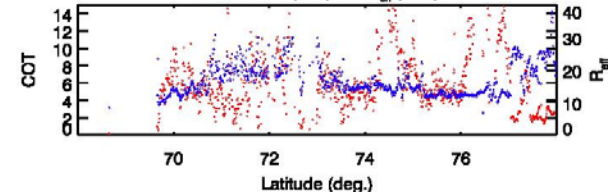
Constructed COT



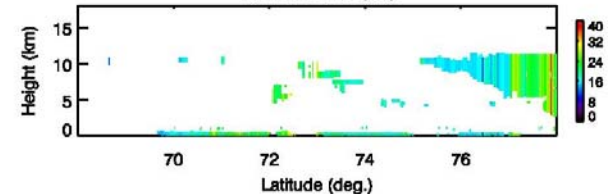
CloudSat Cloud Mask (Mask ≥ 30)



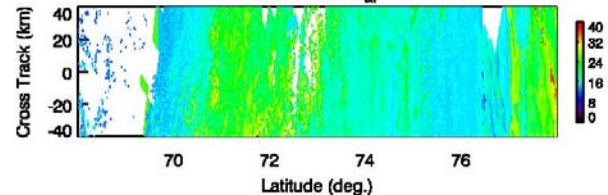
MODIS COT (Red) and R_{eff} (Blue)



Effective Radius (μm)



Constructed R_{eff}



Other satellite derived data products

- Arctic Observation and Reanalysis Integrated System (ArORIS)
 - <http://climatesciences.jpl.nasa.gov>
 - Contact Matthew Christensen
(matt.christensen@jpl.nasa.gov)